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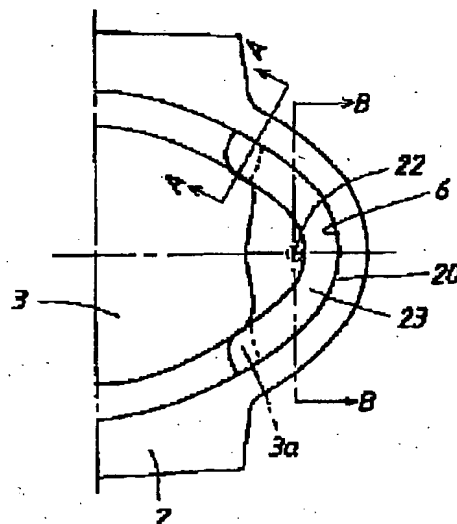
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INVENTOR : NISHIYAMA HIROKI;

INT.CL. : G04G 1/00 G04B 37/10 H01H 13/14

TITLE : SWITCH STRUCTURE



ABSTRACT : PURPOSE: To prevent ride-on of a part of a periphery of a main body over a component case in pushing.

CONSTITUTION: A switch 20 is arranged by fitting a main body 23 in a recess 6 of a component case 2. On the periphery of a watch glass 3 facing to the both ends of the main body 23 with a turned C-shape, a lower part 3a is formed and the both ends of the main body 23 is supported with it. Even if the main body 23 is pushed in operation, it does not incline because its both ends are supported and thus, the riding on the component case due to inclination is prevented.

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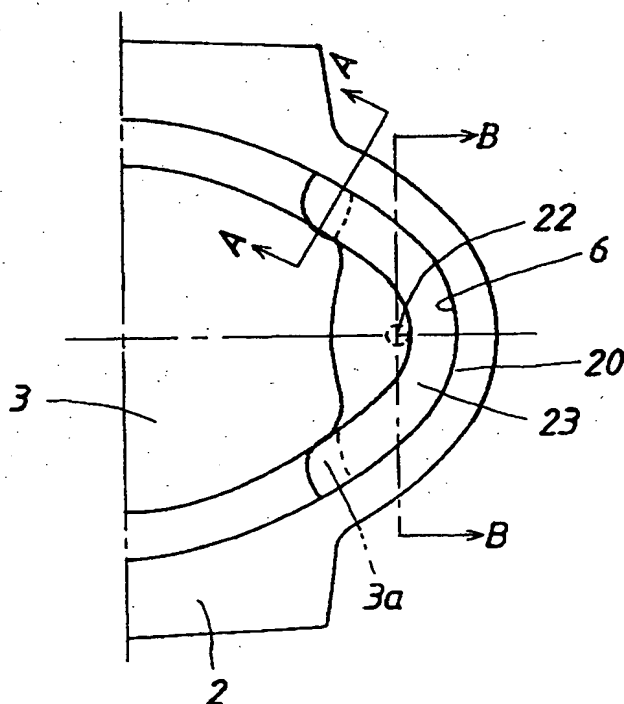
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(54) 【発明の名称】 スイッチ構造

(57) 【要約】

【目的】 押圧時の機器ケースへの乗り上げを防止する。

【構成】 スイッチ20は本体23が機器ケース2の凹部6内に嵌め込みにより配置される。逆「C」字形の本体23の両端部に対向する時計ガラス3の周辺部に低部々分3aを形成して、本体23の両端部を支承する。本体23を押圧操作しても、両端部が支承されているため、傾くことがなく、傾きに起因した機器ケースへの乗り上げがなくなる。



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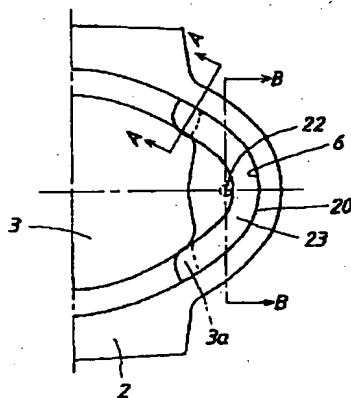
置されるものである。

【0010】本実施例において、スイッチ20の本体23は図1に示すように、中間部分が膨らみのある逆「C」字形の平面形状に成形されており、機器ケース2の3時方向の側部上面を広範囲に覆う比較的大型に形成されている。このように大型となっても、平面における形状が機器ケース2の外形に沿っていると共に（図1参照）、上面部分が機器ケース2の上面と同曲率となっていることから（図2参照）、機器ケース2との違和感がなく、機器全体の意匠が向上している。この本体23はゴム、弾性プラスチックなどにより成形されることにより弾性を有している。

【0011】かかる本体23の周辺部は図2に示すように、下方に垂れ下がり、この垂れ下がり部23aが機器ケース2の上面に当接している。これに対し、逆「C」字形形状における両端部は時計ガラス3に支承される。図3はこの両端部23bを示し、機器ケース2の凹部6における時計ガラス3の一部、より詳細には本体23の両端部23bに対応した部分が薄く形成されることにより、他の部位よりも段状に低くなった低部々分3aとなっている。本体23の両端部23bは、その下面がこの低部々分3aに当接することにより、低部々分3aに支承されている。このような構造では、時計ガラス3はスイッチ20の本体23の周辺部を部分的に支承する支承部材として作用する。

【0012】上記構成において、スイッチ20の本体23における逆「C」字形形状の両端部23bが支承部材としての時計ガラス3の低部々分3aに支承されているため、スイッチ軸22から離れた部位を押圧しても本体23が傾くことがない。このため傾きに起因した機器ケース2への乗り上げがなく、操作性が向上すると共に、きしみ音の発生もなくなる。また本体23全体が弾性を有

【図1】



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しているため、押圧操作により良好に撓むことができる。そして、この撓みによりスイッチ軸22を押し下げるため、スイッチングを行うことができる。従って、本体23を押し下げるための隙間が機器ケース2との間に不要となり、その分、機器ケース2を薄くすることができる。

【0013】本発明は上記実施例に限定されることなく種々変形が可能であり、例えば電子計算機、ページャなどの通信機、その他の機器に同様に適用することができる。

【0014】

【発明の効果】本発明は支承部材の低部々分が本体の周辺部の一部を支承するため、押圧操作による本体の傾きを防止でき、傾きに起因した機器ケースへの乗り上げがなくなる。また本体が弾性を有しており、押圧に基づいた撓みでスイッチ軸を押し下げるため、機器ケースとの間に隙間が不要となり、その分、機器ケースを薄くすることができる。

【図面の簡単な説明】

【図1】本発明の一実施例の平面図。

【図2】図1のA-A線断面図。

【図3】図1のB-B線断面図。

【図4】従来構造の断面図。

【図5】従来構造の乗り上げを示す断面図。

【符号の説明】

2 機器ケース

3 時計ガラス

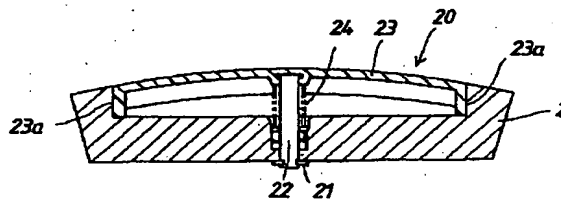
6 凹部

20 スイッチ

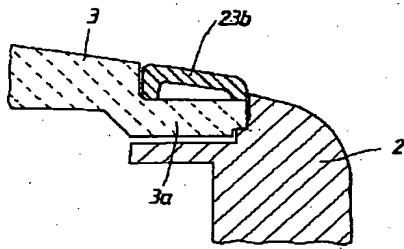
22 スイッチ軸

23 本体

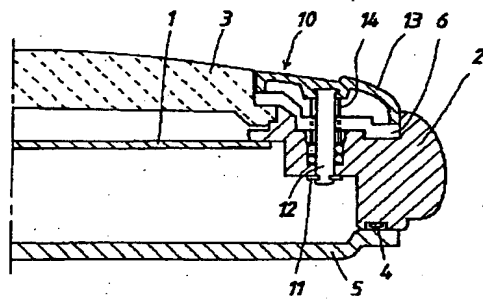
【図2】



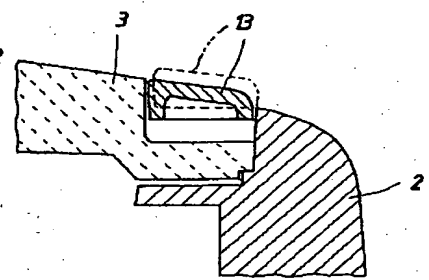
【図3】



【図4】



【図5】



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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the structure of the switch attached in the electronic equipment of an electronic wrist watch, a computer, a transmitter, and others.

[0002]

[Description of the Prior Art] In order to perform the input of a signal, a setup in the mode, a change, etc., the push button-type switch is arranged at various above-mentioned electronic equipment.

Drawing 4 shows among this the conventional switch attached in the electronic wrist watch. The wrist watch is equipped with the back lid 5 with which clock modules (illustration abbreviation), such as a dial 1 and an analog movement, were attached in the inferior surface of tongue of the arm clock housing (device case) 2 prepared in the interior, and the arm clock housing 2 through the seal ring 4. Moreover, the crevice 6 is partially formed in the upper part of the arm clock housing 2, and the push button-type switch 10 is arranged in this crevice 6.

[0003] The switch 10 is equipped with the spring 14 which energizes the switch shaft 12 and a body 13 up by carrying out interpolation of the switch shaft 12 which fell out when a ring E etc. fell out in the lower part and the stop ring 11 engaged with it, and was attached in the arm clock housing 2 free [ sliding ] in the state of the stop, and the body 13 attached in the upper part of the switch shaft 12 and the switch shaft 12. The body 13 is arranged in the shape of insertion in the crevice 6 of the device case 2. Moreover, although illustration is omitted in the device case 2 where the switch shaft 12 can be set caudad, the traveling contact and the stationary contact are arranged, these contacts contact and switching is performed by lower \*\* of the switch shaft 12. It is carried out by lower \*\* of this switch shaft 12 pressing a body 13, and depressing the body 13 whole, and, for this reason, the clearance for securing the depression stroke of a body 13 is formed between the base of a body 13, and the crevice 6.

[0004]

[Problem(s) to be Solved by the Invention] Since the body 13 whole was depressed and switching was performed, as for the conventional switch, the clearance for it was needed. For formation of this clearance, the arm clock housing 2 became that much thick, and the limitation was in thin form-ization. Moreover, with a large-sized switch, it becomes large-sized [ a body 13 ]. Although the body part which was widely different from the switch shaft 12 may be pressed to this large-sized switch, a body 13 tends to incline in this case. As this showed with the broken line of drawing 5, a part of circumference part of a body 13 ran aground to the arm clock housing 2, when it is not only hard coming to carry out subsequent switch actuation, but switch actuation was performed by force, a creak occurred and there was a problem which gives displeasure.

[0005] This invention is made in consideration of the above-mentioned situation, and device cases, such as arm clock housing, can be made thin, and moreover, even if large-sized, it aims at offering the switch structure which can prevent riding raising by the device case at the time of actuation.

[0006]

[Means for Solving the Problem and its Function] A body with the elasticity arranged in the state of fitting in the crevice where the switch structure of this invention was formed in the device case, The switch shaft which was attached in this body and inserted in said device case free [ sliding ], It is attached in a device case so that the part corresponding to the crevice of said device case may

become low partially, and it is characterized by having the bearing member to which the amount of low \*\*\*\* concerned carries out partial bearing of the periphery of said body.

[0007] With the above-mentioned configuration, even if bearing of a part of periphery of a body is carried out to a part for low \*\*\*\* of a bearing member and it performs press actuation to a body, riding raising by the device case which a body did not incline and originated in the inclination is lost. Moreover, even if there is no clearance between the crevices of a device case, switching of it is possible, while the body bends good, and can depress a switch shaft by press actuation and there is no bearing in switching, even if bearing of the periphery is carried out to the bearing member since it has elasticity. For this reason, a device case can be made thin.

[0008]

[Example] Hereafter, this invention is explained with reference to the example applied to the electronic wrist watch. In drawing 1, although the device case 2 is arm clock housing and illustration is omitted, like [ the interior ] drawing 4, a dial 1 and a clock module are arranged, watch glass 3 is inserted in the top face, and the back lid 5 is attached in the inferior surface of tongue. The switch 20 is arranged on the flank top face of the 3:00 direction of this device case 2.

[0009] Drawing 2 and drawing 3 show the A-A line and B-B line cross section in drawing 1, respectively. The switch 20 has the switch shaft 22 inserted in the device case 2 free [ sliding ] after it escaped and the stop ring 21 had engaged with the lower part. The perimeter part of the device case 2 where this switch shaft 22 was pulled out serves as a crevice 6, and the body 23 by which press actuation is carried out inserts it in this crevice 6, and it is arranged in the condition. This body 23 is energized up with the spring 24 which interpolated the switch shaft 22 while it is connected with the switch shaft 22 by pressing the upper limit section of the switch shaft 22 fit. In addition, as for the interior of the device case 2 corresponding to the switch shaft 22, a traveling contact and a stationary contact (all are illustration abbreviations) are arranged.

[0010] In this example, the interstitial segment is fabricated by the flat-surface configuration of a reverse "C" typeface with a swelling, and the body 23 of a switch 20 is formed on a large scale wrap comparison-wise broadly in the flank top face of the 3:00 direction of the device case 2, as shown in drawing 1. Thus, even if large-sized, while the configuration in a flat surface meets the appearance of the device case 2 (refer to drawing 1), since the top-face part has a top face of the device case 2, and this curvature, there is no sense of incongruity with (refer to drawing 2) and the device case 2, and the design of the whole device is improving. This body 23 has elasticity by being fabricated by rubber, elastic plastics, etc.

[0011] As the periphery of this body 23 is shown in drawing 2, it hung down caudad and this hanging-down section 23a is in contact with the top face of the device case 2. On the other hand, bearing of the both ends in the shape of a "Reverse C" typeface is carried out to watch glass 3. Drawing 3 is low \*\*\*\* part 3a which became lower to the shape of a stage than other parts by forming thinly some watch glass 3 in the crevice 6 of the device case 2, and the part more corresponding to both-ends 23b of a body 23 in a detail by showing this both-ends 23b. When that inferior surface of tongue contacts this low \*\*\*\* part 3a, bearing of the both-ends 23b of a body 23 is carried out to low \*\*\*\* part 3a. With such structure, watch glass 3 acts as a bearing member which supports the periphery of the body 23 of a switch 20 partially.

[0012] In the above-mentioned configuration, since bearing of the both-ends 23b of the shape of a "Reverse C" typeface in the body 23 of a switch 20 is carried out to low \*\*\*\* part 3a of the watch glass 3 as a bearing member, even if it presses the part distant from the switch shaft 22, a body 23 does not incline. For this reason, generating of a creak is also lost, while there is no riding raising by the device case 2 resulting from an inclination and operability improves. Moreover, since the body 23 whole has elasticity, it can bend good by press actuation. And since the switch shaft 22 is depressed by this bending, it is switchable. Therefore, between the device cases 2, the clearance for depressing a body 23 becomes unnecessary, and can make the part and the device case 2 thin.

[0013] This invention can be variously applied like transmitters, such as a computer and a pager, and other devices that it can deform, without being limited to the above-mentioned example.

[0014]

[Effect of the Invention] In order for the amount of [ of a bearing member ] low \*\*\*\* to support a part of periphery of a body, this invention can prevent the inclination of the body by press actuation,

and riding raising of it by the device case resulting from an inclination is lost. Moreover, since the body has elasticity and depresses a switch shaft by the bending based on press, a clearance becomes unnecessary between device cases and the part and a device case can be made thin.

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[Translation done.]

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CLAIMS

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[Claim(s)]

[Claim 1] A body with the elasticity arranged in the state of fitting in the crevice formed in the device case, The switch shaft which was attached in this body and inserted in said device case free [ sliding ], Switch structure characterized by having the bearing member to which it is attached in a device case so that the part corresponding to the crevice of said device case may become low partially, and the amount of low \*\*\*\* concerned supports the periphery of said body partially.

[Claim 2] Switch structure characterized by for said device case being arm clock housing, and being watch glass with which said bearing member is attached in arm clock housing.

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[Translation done.]



